

EXECUTIVE SUMMARY

Introduction

The Arizona Department of Transportation (ADOT) in cooperation with the Federal Highway Administration (FHWA) is preparing an Environmental Impact Statement (EIS) for proposed improvements to a segment of Interstate 10 (I-10). The purpose of the I-10 Corridor Improvement Study is to evaluate existing roadway conditions and determine improvements to I-10 that will enhance operational characteristics as well as mobility of regional and local traffic.

This Alternatives Selection Report describes the development, evaluation, and screening of capacity improvement alternatives on I-10 from State Route 51 (Milepost 147.5) to the Santan Freeway (Milepost 160.9). This project is located in the Arizona Department of Transportation’s (ADOT’s) Phoenix District within Maricopa County in south-central Arizona. The study area also includes the segment of Interstate 17 from the I-10/I-17 Traffic Interchange (TI) (Milepost 193.9) west to 7th Avenue (Milepost 196.9), SR 143 from Broadway Road (Milepost 0.0) north to just south of the south bank of the Salt River (Milepost 1.4), and US 60 from the I-10/US60 TI (Milepost 172.0) east to Mill Avenue (Milepost 173.7).

Traffic demand is causing the I-10 corridor and adjacent local arterial street system to become increasingly congested during the morning and evening peak travel periods. Future traffic volume projections indicate the congestion will continue to worsen causing further travel delays and increased travel times for those using the I-10 corridor. Increased congestion on I-10 will cause travelers to divert their trips to other freeway corridors and the local arterial street system, causing these transportation facilities to become increasingly congested as well. Improvements to the I-10 corridor are necessary to increase the freeway capacity and help alleviate increased levels of traffic congestion on all components of the overall transportation system in the study area.

The goal of this study project is to explore and objectively evaluate all reasonable alternatives in order to develop a long-term master plan for the I-10 corridor in accordance with the approved regional and local transportation plans. This study will also seek to optimize the traffic operations within the corridor for the projected Design Year 2030 traffic demand, to retain local access at existing traffic interchanges, and to minimize or mitigate impacts the improvements may have on the surrounding community. In conjunction with the EIS a Design Concept Report (DCR) and Implementation Plan will be developed in support of this study.

Regional Planning

The Maricopa Association of Governments (MAG), Regional Public Transportation Authority (RPTA) (Valley Metro) and ADOT have worked together for many years to develop a comprehensive plan for the Regional Freeway System that is included in the Regional Transportation Plan (RTP) that was adopted by the MAG Regional Council in November 2003.

The voters of Maricopa County passed Proposition 400 in November 2004, which authorized the continuation of the existing half-cent sales tax for the next 20 years to be used for implementing the RTP. A portion of the revenues collected from the half-cent sales tax extension will be

deposited into the Regional Area Road Fund (RARF) to fund the RTP Freeway Program (RTPFP) projects. This project is included in the RTPFP.

Previous Planning Studies

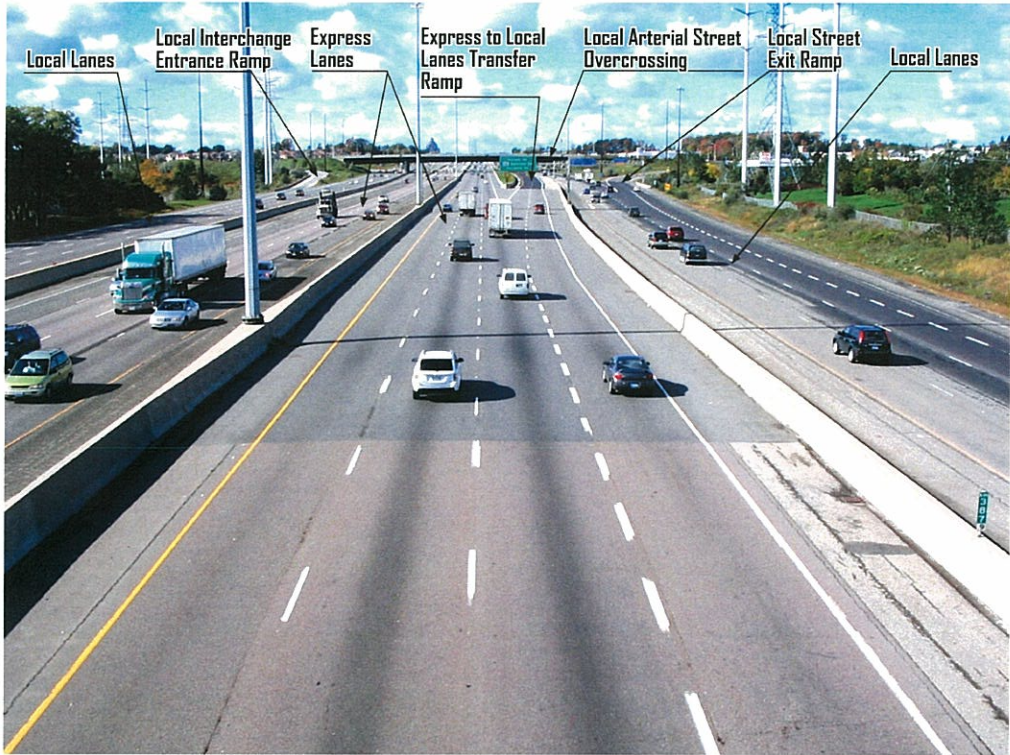
The RTP and Transportation Improvement Plan (TIP) include the construction of separate express and local lanes (previously termed Collector-Distributor or C-D Roads) on I-10 between Buckeye Road and Baseline Road in accordance with the *Interstate 10 Corridor Refinement Study* (1988).

This concept would provide independent roadways to separate regional traffic (on the express lanes) from local traffic (on the local lanes), thereby eliminating the current weaving maneuvers that contribute to severe congestion throughout the corridor during the peak travel periods. The ramp connections to SR 143 and the local arterial street interchanges would enter and exit the freeway system from the local lanes, allowing travelers in the express lanes to pass through the corridor more efficiently. Conversely, travelers on the local lanes would not conflict with the high volume of regional traffic traveling through the study area each day.

“Express lane to local lane” and “local lane to express lane” transfer ramps would provide access between the express and local lanes at selected locations. The following pictures represent the existing Highway 401 in Toronto, Canada that successfully operates as an Express/Local Lane facility within that metropolitan area.



Existing Highway 401 Express/Local Lane Freeway System



Highway 401 Express to Local Lanes Transfer Ramp,
Arterial Street Ramp Connections to Local Lanes

The Express/Local lane concept that was developed in 1988 was based upon Year 2005 traffic volume projections that forecast 250,000 vehicles per day (vpd) at the Broadway Curve. Recent traffic counts that were conducted in 2006 indicate the volume of traffic traveling through the Broadway Curve is approximately 294,000 vpd.

Subsequently, the purpose of this study is to: 1.) Evaluate the existing and future levels-of-service along the I-10 corridor; 2.) Evaluate the operational performance of the I-10 Express/Local Lane concept recommended from the *I-10 Corridor Refinement Study* with Design Year 2030 traffic volume projections; 3.) Develop a master improvement plan for this segment of the I-10 corridor that will operate efficiently with the projected Year 2030 travel demand; and, 4.) Develop a phased implementation plan for programming staged construction projects with the funding identified in the RTP and as additional funding may become available in the future.

Programming

The Arizona Transportation Board has approved funding in the current ADOT Tentative Five-Year Transportation Facilities Construction Program (2008-2012) to begin construction of this project. The following projects are listed for I-10, SR 153, SR 143 and US 60 within the study area:

Current Projects in ADOT’s Tentative 5-Year Construction Program (2008-2012)

Route	Begin MP	Location	Type of Work	Funding Source	Funding Amount (\$000)	Fiscal Year
I-10	147.0	SR51 to 40 th St., CD Road	Right-of-Way	State	10,000	2010
I-10	147.0	SR51 to 40 th St., CD Road	Design	State	10,000	2010
I-10	147.0	SR51 to 40 th St., CD Road	Construction	NH	108,000	2012
I-10	147.0	SR51 to 40 th St., CD Road	Construction	RARF	12,000	2012
I-10	152.1	40 th St.–Baseline Rd, CD Road	Design	State	5,775	2008
I-10	152.1	40 th St.–Baseline Rd, CD Road	Right-of-Way	State	5,000	2008
I-10	152.1	40 th St.–Baseline Rd, CD Road	Design	State	4,125	2008
I-10	152.1	40 th St.–Baseline Rd, CD Road	Right-of-Way	State	20,000	2009
I-10	152.1	40 th St.–Baseline Rd, CD Road	Design	State	4,675	2009
I-10	152.1	40 th St.–Baseline Rd, CD Road	Design	State	4,675	2009
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	NH	50,000	2010
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	NH	74,235	2010
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	State	55,765	2011
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	NH	85,000	2011
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	State	23,200	2012
I-10	152.1	40 th St.–Baseline Rd, CD Road	Construction	NH	61,800	2012
I-10	161.2	SR202L (Santan) to Riggs Rd	Design	State	2,310	2009
I-10	161.2	SR202L (Santan) to Riggs Rd	Construction	NH	42,000	2010
US60	172.0	I-10 to SR101L (Price)	Design	State	700	2008
US60	172.0	I-10 to SR101L (Price)	Construction	State	8,000	2010
SR153	0.0	Superior Ave – University Dr	Construction	RARF	16,000	2009
SR153	0.0	Superior Ave – University Dr	Design (Landscape)	RARF	60	2009
SR153	0.0	Superior Ave – University Dr	Construction (Landscape)	RARF	610	2010

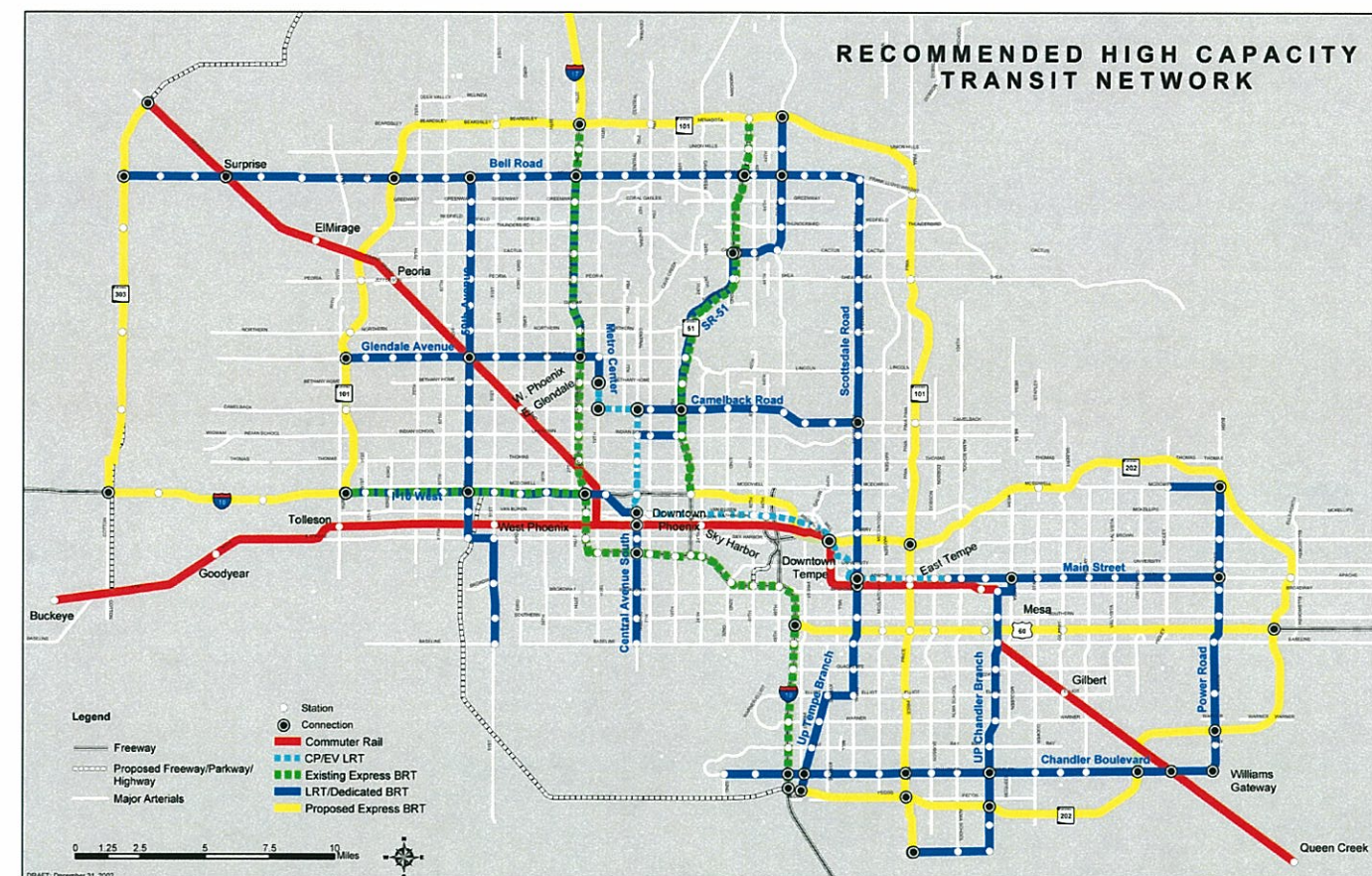
A number of additional projects are currently planned within or adjacent to the study corridor and are included in the RTP. These projects are summarized, as follows:

Route	Freeway Segment	Type of Work	RTPFP Budget (\$000)	RTPFP Phase	RTPFP Phase (years)
I-10	Baseline Rd – 202L, Santan	General-Purpose Lanes	50,640	2	2011-2015
I-17	I-10 (East) – I-10 (West)	HOV Lanes	77,000	3	2016-2020
SR 202L	Dobson Road to I-10	HOV Lanes/Ramp	46,000	2	2011-2015

Transit

The MAG Regional Council adopted the recommendations of the *High Capacity Transit Plan* (HCTP) in June 2003. This study was conducted to develop a network of transit services to meet the growing travel demand in the MAG region. This long-range study considered projected travel demand in the MAG region with a forecast horizon year of 2040 and a projected population of over 7 million residents and is intended to provide a policy framework for transit technology investments in the future.

As shown on the figure on the following page, the recommendations of the HCTP included Express Bus and Bus Rapid Transit (BRT) that would use the existing and planned High Occupancy Vehicle (HOV) lanes throughout the Regional Freeway System. The recommendations of the HCTP were included in the transit component of the RTP. The I-10 Corridor Improvement Study will evaluate the projected travel demand for the HOV lanes, and attempt to provide a sufficient number of HOV lanes to provide the capacity for that demand. Consistent with FHWA Technical Guidance for major highway projects in urban areas, the I-10 Corridor Improvement Study has considered reasonable and feasible transit options. Consideration of the transit alternatives has been accomplished by reference to the regional transportation plan.



Source: MAG High Capacity Transit Plan

Phoenix Sky Harbor International Airport

All improvements near the runways at Phoenix Sky Harbor International Airport (PSHIA) are controlled by a variety of runway airspace requirements and safety zone regulations. The Federal Aviation Administration (FAA) must be notified whenever their FAR Part 77 Runway Approach Surface may be penetrated with new construction planned in the vicinity of an airport, or if a new facility would extend into their Runway Projection Zone (RPZ) safety area. Objects that would

penetrate the Part 77 surface or encroach into the RPZ must be evaluated and approved by the FAA.

The Phoenix Aviation Department Director transmitted a letter to ADOT in August 2005 that included a list of concerns regarding the interface of the I-10 Widening Alternatives with the west entrance to the Phoenix Sky Harbor International Airport (PSHIA). A few of the concerns included the following:

- Access should be retained between I-10, Interstate 17 (I-17) and the west airport entrance;
- The airport access locations should accommodate traffic growth forecasts;
- Consider and accommodate airport security infrastructure and operations;
- Provide easy and intuitive access with direct access points and appropriate signing, both for the east and west airport entrances;
- Reduce non-airport cut-through traffic;
- Minimize encroachments into the airport that could impact the operations of the runways.

The ADOT project team has been meeting regularly with representatives of the Phoenix Aviation Department (PAD) which has resulted in the development of the west airport access options that are included in this report. The meetings will continue throughout the study process to develop a plan that would be acceptable to ADOT, PAD, RPTA, FHWA and the FAA that would balance airport access, the ability to implement airport security measures, and sufficiently address runway safety requirements. PAD recently submitted a letter supporting the proposed I-10 improvements near the airport.

Project Scoping

Agency and public input has helped to identify an initial range of alternatives for consideration. These alternatives included: freeway widening alternatives, parallel facilities, potential double-decking of I-10, a depressed double-decking system, toll/congestion pricing, the potential elimination of entrance and exit ramps to local arterial streets and mass transit. Initial screening by the Project Team identified I-10 widening improvements, including the express/local lane concept, as the most viable concept for developing an initial range of alternatives. These improvement concepts are the I-10 Widening Alternatives. A Scoping Report documenting the first phase of the EIS study process was completed in April 2003.

Alternatives Screening

This report describes the development and evaluation of the I-10 Widening Alternatives and Local Access Options as well as the rationale for eliminating alternatives from further consideration. The alternatives recommended for further detailed study were selected based on an evaluation of design criteria, traffic operational characteristics, environmental impacts, right-of-way impacts, local access opportunities, construction cost, and agency input. Public agencies that have been involved with this project include ADOT; FHWA; MAG; RPTA; FAA; the Town of Guadalupe; and the cities of Phoenix, Tempe and Chandler.

Five I-10 Widening Alternatives and 16 Local Access Options were developed for evaluation. The five I-10 Widening Alternatives included the following:

- No-Build Alternative
- Alternative 1: 1988 Express/Local Lanes Concept
 - Original Concept adopted in 1988
- Alternative 2: Express/Local Lanes Concept
 - Provides more Express, Local and HOV lanes than Alternative 1
- Alternative 3: Express/Local Lanes Concept (with HOV Viaduct)
 - Same number of Express, Local and HOV lanes as Alternative 2
 - Includes an elevated viaduct for HOV lanes between I-17 and US 60
- Alternative 4: Express/Local Lanes Concept
 - Same as Alternative 2, but shifts one lane from Local Lanes to Express Lanes
- Alternative 5: I-10 Widening Concept
 - Provides more general-purpose and HOV lanes than No-Build Alternative

In addition to the freeway widening alternatives, numerous options were developed to maintain access to the local arterial street system in conjunction with the Express/Local Lanes alternatives. These options include the following:

- West Entrance to Phoenix Sky Harbor International Airport:
 - Option 1: I-10 Widening Alternative 2
 - Option 2: Fully Directional Interchange with Sky Harbor Boulevard
 - Option 3: Single-Point Urban Interchange with Buckeye Road
 - Option 4: Directional Ramps with Sky Harbor Boulevard, Half Interchange at Buckeye Road
 - Option 5: Fully Directional TI at Sky Harbor Boulevard, East Ramps at the 16th Street TI
- 24th Street Traffic Interchange:
 - Option 1: Half-Diamond TI with Ramp Connections to the Express Lanes
 - Option 2: Half-Diamond TI with Ramp Connections to the Local Lanes
 - Option 3: Full Diamond TI with Ramp Connections to the Local Lanes
- I-10/SR143 TI:
 - Option 1: I-10 Widening Alternative
 - Option 2: Restore South University Drive Ramps Concept 1
 - Option 3: Restore South University Drive Ramps Concept 2
 - Option 4: Restore the Ramp from the Eastbound Local Lanes to Southbound 48th Street
 - Option 5: Westbound Broadway Road to University Drive Connection
- Baseline Road TI Eastbound Exit Ramp:
 - Option 1: Ramp Connection to the Express Lanes
 - Option 2: Ramp Connection to the Local Lanes
 - Option 3: Ramp Connections to the Express and Local Lanes

A three-tiered multi-discipline screening process was used to determine which I-10 Widening Alternatives and Local Access Options should be retained for further consideration. The screening process included a proactive agency coordination process with the City of Phoenix, City of Tempe and Town of Guadalupe. As a result of the multi-discipline screening process, two I-10 Widening Alternatives and seven Local Access Options are recommended for further evaluation. Section 4.0, Evaluation of Alternatives, summarizes the process and issues considered in making these recommendations.

Recommendations

The Project Team recommends the following I-10 Widening Alternatives for further study through the DCR and EIS phase of development:

- Alternative 2: Express/Local Lanes Concept
- Alternative 4: Express/Local Lanes Concept

The Project Team also recommends the following local access options for further study in conjunction with the I-10 Widening Alternatives:

- West Entrance to Phoenix Sky Harbor International Airport:
 - Option 3: Single-Point Urban Interchange at Buckeye Road
 - Option 4: Directional Ramps with Sky Harbor Boulevard, Half Diamond Interchange at Buckeye Road
- 24th Street Traffic Interchange:
 - Option 1: Half-Diamond Interchange with Ramp Connections to the Express Lanes
 - Option 2: Half-Diamond Interchange with Ramp Connections to the Local Lanes
- I-10/SR 143 TI:
 - Option 3: Restore South University Drive Ramps Concept 2
 - Option 4: Restore the Ramp from the Eastbound Local Lanes to Southbound 48th Street
- Baseline Road TI Eastbound Exit Ramp
 - Option 3: Ramp Connections to the Express and Local Lanes

These recommendations will be confirmed after the Project Team reviews the comments received from the public during the Public Information Meetings that are planned in the spring of 2007. A final list of reasonable alternatives as well as the No-Build will be fully analyzed in the EIS.